

BELL HOWELL

CONTAINS NO CBI

BELL & HOWELL

Mailed Certified Return Receipt Requested

June 9, 1989

89 JUN 14 PM 2:32
U.S. ENVIRONMENTAL
PROTECTION
AGENCY

Document Processing Center
Office of Toxic Substances, TS-790
U. S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

Dear Sir or Madam:

Please find enclosed the CAIR reporting forms and associated MSDS's for the Document Management Products Company, a division of the Bell and Howell Company.

This report covers our use of the listed chemical Toluene Diisocyanate (CAS 26471-62-5) as binder/additive in a paint. Our "process" usage of the listed chemical in 1988 was .33kg.

Sincerely yours,


Robert S. Matthews

Manager Manufacturing Systems & Budgets

 **EPA-OTS**



000657803T

90-890006249

cc: Ed Carr
Floyd Phillips



Form Approved
OMB No. 2010-0019
Approval Expires 12-31-89

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Comprehensive Assessment Information Rule
REPORTING FORM

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

Document
Control Number: _____

Docket Number: _____

PART A GENERAL REPORTING INFORMATION

[] a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0][2][6][4][7][1]-[6][2]-[5]

(i) Chemical name as listed in the rule NA

(ii)	Name of mixture as listed in the rule	NA
------	--	----

(iii) Trade name as listed in the rule NA

Name of category as listed in the rule	NA
--	----

CAS No. of chemical substance [][][][][][][]-[][][]-[][]

Name of chemical substance	NA
----------------------------------	----

CBI Manufacturer 1

[] Importer 2

Processor (3)

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor	5
---	---

3

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

☒ Yes ☒ Go to question 1.04

☐ No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

☐ Yes 1

☐ No ②

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) NA

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

☐ Trade name 3101 Component II

Is the trade name product a mixture? Circle the appropriate response.

Yes ①

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Robert S. Matthews
NAME

Robert S. Matthews
SIGNATURE

June 9, 1989
DATE SIGNED

Manager Safety
TITLE

(312) 675 - 7600
TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

CBI

☐

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

NA	_____	_____	_____
	NAME	SIGNATURE	DATE SIGNED
_____	()	-	_____
TITLE		TELEPHONE NO.	DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI

☐

"My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

NA	_____	_____	_____
	NAME	SIGNATURE	DATE SIGNED
_____	()	-	_____
TITLE		TELEPHONE NO.	

☐ Mark (X) this box if you attach a continuation sheet.

1.09 Facility Identification

[] Address [6][8][0][0][][N.][][M.][C][C][O][R][M.][I][C][K][][R][O][A][D][][][][]
Street

[C][H][I][C][A][G][O] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
City

[1][L] [6][0][6][4][5]--[2][7][9][7]
State Zip

Dun & Bradstreet Number[0][0]-[5][0][6]-[9][1][4][1]

EPA ID Number I.D. [0][4][2][5][3][3][1][6][6]

Employer ID Number[3][6][0][7][8][9][2][0]0

Primary Standard Industrial Classification (SIC) Code[3][8][6][1]

Other SIC Code[N][A][][]

Other SIC Code [N] [A] [] []

1.10 Company Headquarters Identification

[] Address [5][2][1][5][][0][L][D][][0][R][C][H][A][R][D][][R][O][A][D][][][][][]
Street

[illegible]

[1][L] [6][0][0][7][7]--[1][0][7][6]
State Zip

Dun & Bradstreet Number [0][0]-[5][0][6]-[9][1][4][1]

Employer ID Number[3] [6] [0] [7] [1 8] [9] [1 2] [0] 0

☐ Mark (X) this box if you attach a continuation sheet.

1.11 Parent Company Identification

CBI Name [B][E][L][L] & [H][O][W][E][L][L] [C][O.]
[] Address [5][2][1][5] [0][L][D] [0][R][C][H][A][R][D] [R][O][A][D]
 Street
 [S][K][O][K][I][E]
 City
 [][] [6][0][0][7][7]--[][0][7][6]
 State Zip

Dun & Bradstreet Number [0][0]-[5][0][6]-[9][1][4][1]

1.12 Technical Contact

CBI Name [R][O][B][E][R][T][][S.][][M][A][T][T][H][E][W][S][][][][][][][][][][][][][][][][]
[][] Title [M][A][N][A][G][E][R][][M][F][G.][][S][Y][S][][&][][B][U][D][G][E][T][S][][][][][][][][][][][][][][][][]
Address [6][8][0][0][][N.][][M][C][C][O][R][M][I][C][K][][][][][][][][][][][][][][][][]
Street
[C][H][I][C][A][G][O][][][][][][][][][][][][][][][][]
City
[I][L] [6][0][6][4][5]--[2][7][9][7]
State Zip
Telephone Number[3][1][2]-[6][7][5]-[7][6][0][0]

1.13 This reporting year is from 0 1 8 8 to 1 2 8 8
Mo. Year Mo. Year

☐ Mark (X) this box if you attach a continuation sheet.

1.14 Facility Acquired -- If you purchased this facility during the reporting year, provide the following information about the seller:

[illegible][illegible]

Street

City

[] [] [] [] [] [] [] -- [] [] [] []

State

Zio

Employer ID Number[][][][][][][][]

Date of Sale [] [] [] [] [] []

Mo.

Day

Year

[illegible]

Telephone Number[][]-[][]-[][][][]

1.15 Facility Sold -- If you sold this facility during the reporting year, provide the following information about the buyer:

[illegible][illegible]

Street

[] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []

City

$$[\overline{\square}]\overline{\square} \quad [\overline{\square}]\overline{\square}]\overline{\square}]\overline{\square}]\overline{\square}] \dashrightarrow [\overline{\square}]\overline{\square}]\overline{\square}]\overline{\square}]$$

State

Zip

Employer ID Number[][][][][][][][]

Date of Purchase[][] [][] [][]

Mo.

Day

Year

[illegible]

Telephone Number[] [] [] - [] [] [] - [] [] [] []

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[]

Processed (include quantity repackaged)33Kg/yr
---	----------

In storage at the end of the reporting year

In storage at the end of the reporting year 20Kg.

9

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

[]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
Butyl Acetate (123-86-4)	Red Spot Paint & Varnish	44%
Ethyl Acetate (141-78-6)	"	14%
Aromatic Polyisocyanate	"	42%
Toluene Diisocyanate (26471-62-5)	"	4.7%
		Total 100%

10

SECTION 2 MANUFACTURER, IMPORTER, AND PROCESSOR VOLUME AND USE

2.01 State the total number of years, including the reporting year, that your facility has
CBI manufactured, imported, or processed the listed substance.

Number of years manufactured	<u>NA</u>	yrs.
Number of years imported	<u>NA</u>	yrs.
Number of years processed	<u>6</u>	yrs.

2.02 State the quantity of the listed substance that your facility manufactured, imported, or processed during the corporate fiscal year preceding the reporting year.

Year ending 12 87
Mo. Year

Quantity manufactured	<u>NA</u>	kg
Quantity imported	<u>NA</u>	kg
Quantity processed	<u>.43</u>	kg

2.03 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 2 corporate fiscal years preceding the reporting year in descending order.

Year ending 12 87
Mo. Year

Quantity manufactured	<u>NA</u>	kg
Quantity imported	<u>NA</u>	kg
Quantity processed	<u>.43</u>	kg
Year ending	<u>[1] [2]</u> <u>[8] [6]</u>	
	Mo. Year	
Quantity manufactured	<u>NA</u>	kg
Quantity imported	<u>NA</u>	kg
Quantity processed	<u>.31</u>	kg

☐ Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed43 kg

Year ending
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed31 kg

Year ending
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed45 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ Continuous process 1

Semicontinuous process 2

Batch process 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

CBI

☐

Continuous process 1

Semicontinuous process 2

Batch process ③

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

CBI

☐

Manufacturing capacity kg/yr

Processing capacity kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

CBI

☐

	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase			NA
Amount of decrease			

☐ Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

Days/Year Average
Hours/Day

Process Type #1 (The process type involving the largest quantity of the listed substance.)

Manufactured	_____	_____
Processed	33	1.5

Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)

Manufactured	NA	_____
Processed	_____	_____

Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)

Manufactured	NA	_____
Processed	_____	_____

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Maximum daily inventory	_____	kg
Average monthly inventory	_____	kg

☐ Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of By-products, Coproducts, or Impurities</u>
NA				

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
K	100%	100%	CM

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
K	100%	100%	CM

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
K	F4	NA	CM

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

☐ Truck NA 1
Railcar 2
Barge, Vessel 3
Pipeline 4
Plane 5
Other (specify) 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers
CBI or prepared by your customers during the reporting year for use under each category
of end use listed (i-iv).

☐

Category of End Use

i. Industrial Products

Chemical or mixture NA kg/yr
Article kg/yr

ii. Commercial Products

Chemical or mixture kg/yr
Article kg/yr

iii. Consumer Products

Chemical or mixture kg/yr
Article kg/yr

iv. Other

Distribution (excluding export) kg/yr
Export kg/yr
Quantity of substance consumed as reactant kg/yr
Unknown customer uses kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

2.17 State the quantity of the listed substance that you exported during the reporting
CBI year.

☐

In bulk^{NA}..... kg/yr

As a mixture kg/yr

In articles kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.		
The listed substance was transferred from a different company site.		
The listed substance was purchased directly from a manufacturer or importer.		
The listed substance was purchased from a distributor or repackager.	NA (See 3.04)	
The listed substance was purchased from a mixture producer.		

3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

CBI

☐

Truck	(1)
Railcar	2
Barge, Vessel	3
Pipeline	4
Plane	5
Other (specify) _____	6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.

CBI

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) Pint Cans 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders mmHg
Tank rail cars mmHg
Tank trucks mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

☐

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify + % precision)</u>	<u>Amount Processed (kg/yr)</u>
<u>3101 - Component II</u>	<u>Red Dot Paint</u>	<u><.7%</u>	<u>47</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	NA	
Class II chemical		
Polymer		

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI

☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	_____ % purity	_____ % purity	NA-Mixture _____ % purity
Technical grade #2	_____ % purity	_____ % purity	_____ % purity
Technical grade #3	_____ % purity	_____ % purity	_____ % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes (1)

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

Another source (2)

☐ Mark (X) this box if you attach a continuation sheet.

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes .NA - 100% used on-site..... 1
 No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

☐

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	③	4	5
Store	1	2	3	4	5
Dispose	1	2	3	4	5
Transport	1	2	3	4	5

☐ Mark (X) this box if you attach a continuation sheet.

- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

<u>Physical State</u>		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	_____	_____	NA (Solution)	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Powder	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Fiber	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Aerosol	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) NA (1/M cm) at _____ nm

Reaction quantum yield, ϕ at _____ nm

Direct photolysis rate constant, k_p , at ... _____ 1/hr _____ latitude

b. Oxidation constants at 25°C:

For 1O_2 (singlet oxygen), k_{ox} 1/M hr

For RO_2 (peroxy radical), k_{ox} 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... _____ mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... _____ 1/hr

Specify culture _____

e. Hydrolysis rate constants:

For base-promoted process, k_B 1/M hr

For acid-promoted process, k_A 1/M hr

For neutral process, k_N 1/hr

f. Chemical reduction rate (specify conditions) _____

g. Other (such as spontaneous degradation) ... _____

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	NA
Atmosphere	
Surface water	
Soil	

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
	NA		in
			in
			in
			in

5.03 Specify the octanol-water partition coefficient, K_{ow} ... NA at 25°C
 Method of calculation or determination

5.04 Specify the soil-water partition coefficient, K_d NA at 25°C
 Soil type

5.05 Specify the organic carbon-water partition coefficient, K_{oc} NA at 25°C

5.06 Specify the Henry's Law Constant, H NA atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

Bioconcentration Factor

Species

Test¹

NA

¹Use the following codes to designate the type of test:

F = Flowthrough

S = Static

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify)	_____	_____
_____	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

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☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
UK	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

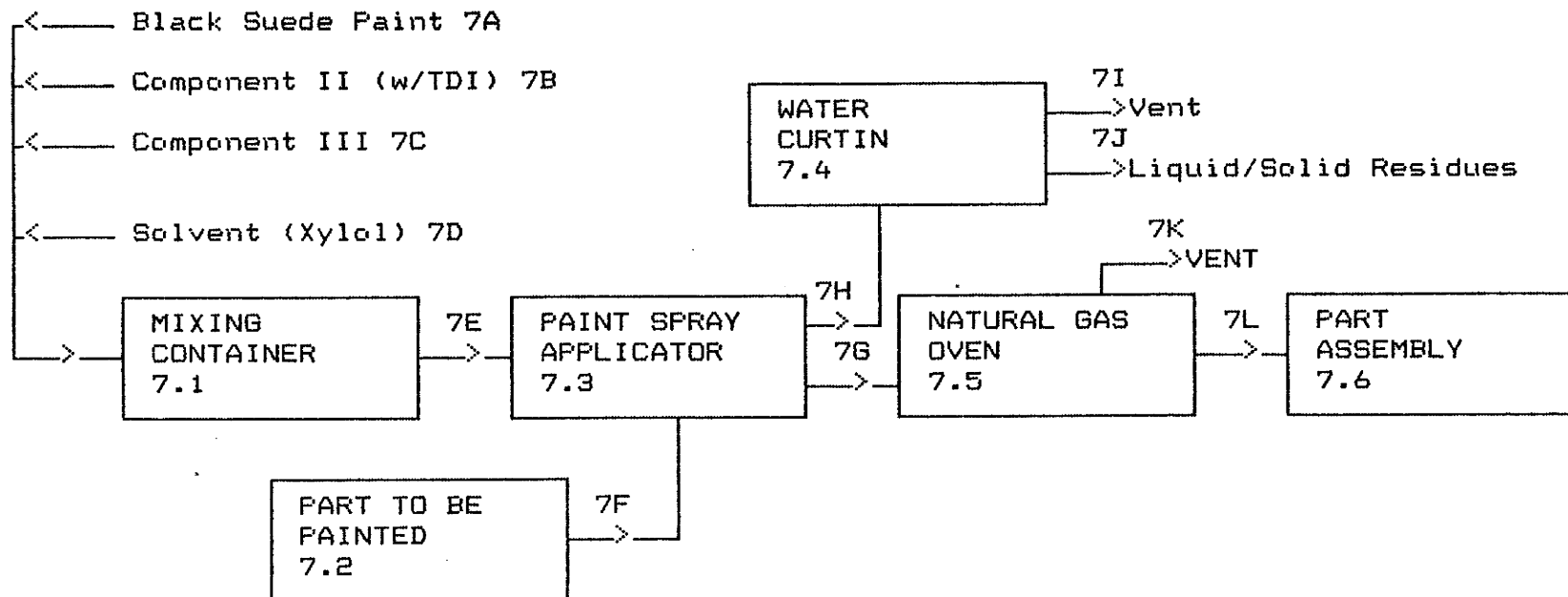
CBI

☐ Process type Painting

(See block flow diagram on page 42A)

☒ Mark (X) this box if you attach a continuation sheet.

PAINTING PROCESS
For Benzene, 1,3-DIISOCYANATOMETHYL (TOLUENE DIISOCYANATE)
QUESTION 7.01, PROCESS DIAGRAM



42A

May 12, 1989

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7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

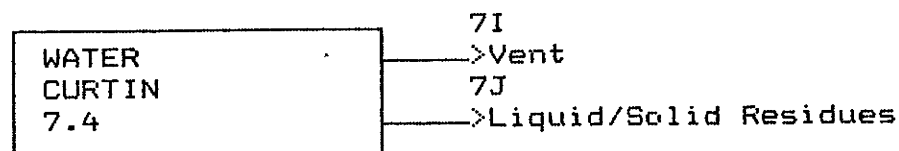
CBI

☐ Process type Painting

(See block flow diagram on page 44A)

☒ Mark (X) this box if you attach a continuation sheet.

PAINTING PROCESS
QUESTION 7.03, PROCESS EMISSION STREAMS AND EMISSION POINTS



Note: There is little or no emissions of listed substance;
All or most of listed substance used becomes part of the
painted finish on the article (part).

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7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Painting

<u>Unit Operation ID Number</u>	<u>Typical Equipment Type</u>	<u>Operating Temperature Range (°C)</u>	<u>Operating Pressure Range (mm Hg)</u>	<u>Vessel Composition</u>
<u>7.1</u>	<u>Paint Can</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>Aluminum</u>
<u>7.2</u>	<u>Machine Tooling</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>Steel</u>
<u>7.3</u>	<u>Compressed Air Sprayer</u>	<u>Ambient</u>	<u>20 PSI</u>	<u>Aluminum</u>
<u>7.4</u>	<u>Water Curtin</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>Aluminum</u>
<u>7.5</u>	<u>Natural Gas Oven</u>	<u>65°C</u>	<u>Atmospheric</u>	<u>Steel</u>
<u>7.6</u>	<u>Light Assembly</u>	<u>Ambient</u>	<u>Atmospheric</u>	<u>Various</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Painting

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
<u>7A</u>	<u>Paint</u>	<u>OL</u>	<u>389</u>
<u>7B</u>	<u>Additive (0.7% TDI)</u>	<u>OL</u>	<u>47</u>
<u>7C</u>	<u>Additive</u>	<u>OL</u>	<u>81</u>
<u>7D</u>	<u>Solvent</u>	<u>OL</u>	<u>80</u>
<u>7E</u>	<u>Fill Spray Applicator</u>	<u>OL</u>	<u>NA</u>
<u>7F</u>	<u>Move Part to Spray Applicator</u>	<u>SO</u>	<u>NA</u>
<u>7G</u>	<u>Paint (Spray) Part</u>	<u>OL</u>	<u>597 (1)</u>
<u>7H</u>	<u>Overspray to Water Curtin</u>	<u>OL</u>	<u>239 (2)</u>

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

(1) Total of Above Components

(2) Assumes 40% Overspray

☒ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Painting

<u>Process Stream ID Code</u>	<u>Process Stream Description</u>	<u>Physical State¹</u>	<u>Stream Flow (kg/yr)</u>
<u>7I</u>	<u>Vent Volatiles</u>	<u>GU</u>	<u>UK</u>
<u>7J</u>	<u>Trap Residues</u>	<u>SY</u>	<u>UK</u>
<u>7K</u>	<u>Vent Burner Exhaust</u>	<u>GU</u>	<u>UK</u>
<u>7L</u>	<u>Dry Part and Move to Assembly</u>	<u>SO</u>	<u>UK</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 SO = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 If a process block flow diagram is provided for more than one process type, photocopy
 this question and complete it separately for each process type. (Refer to the
 CBI instructions for further explanation and an example.)

☐ Process type Painting

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concen- trations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>7B</u>	<u>Butyl Acetate</u>	<u>44% (A) (W)</u>	<u>UK</u>	<u>UK</u>
	<u>Ethyl Acetate</u>	<u>14% (A) (W)</u>	<u>UK</u>	<u>UK</u>
	<u>Aromatic Polyisocyanate</u>	<u>42% (A) (W)</u>	<u>UK</u>	<u>UK</u>
	<u>Toulene Diisocyanate</u>	<u>47% (A) (W)</u>	<u>UK</u>	<u>UK</u>
<u>7C</u>	<u>Xylene</u>	<u>90% (A) (W)</u>	<u>UK</u>	<u>UK</u>
	<u>Dibutyltin Dilaurate</u>	<u>10% (A) (W)</u>	<u>UK</u>	<u>UK</u>

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 8 RESIDUAL TREATMENT GENERATION, CHARACTERIZATION, TRANSPORTATION, AND
MANAGEMENT

General Instructions:

For questions 8.04-8.06, provide a separate response for each residual treatment block flow diagram provided in question 8.01, 8.02 or 8.03. Identify the process type from which the information is extracted.

For questions 8.05-8.33, the Stream Identification Codes are those process streams listed in either the Section 7 or Section 8 block flow diagrams which contain residuals for each applicable waste management method.

For questions 8.07-8.33, if residuals are combined before they are handled, list those Stream Identification Codes on the same line.

Questions 8.09-8.33 refer to the waste management activities involving the residuals identified in either the Section 7 or Section 8 block flow diagrams. Not all Stream Identification Codes used in the sample answers (e.g., for the incinerator questions) have corresponding process streams identified in the block flow diagram(s). These Stream Identification codes are for illustrative purposes only.

For questions 8.11-8.33, if you have provided the information requested on one of the EPA Office of Solid Waste surveys listed below within the three years prior to your reporting year, you may submit a copy or reasonable facsimile in lieu of answering those questions which the survey addresses. The applicable surveys are: (1) Hazardous Waste Treatment, Storage, Disposal, and Recycling Survey; (2) Hazardous Waste Generator Survey; or (3) Subtitle D Industrial Facility Mail Survey.

☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

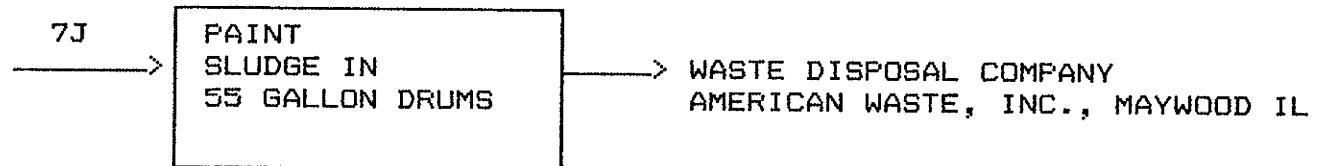
CBI

☐ Process type Painting

(See block flow diagram on page 50A)

☒ Mark (X) this box if you attach a continuation sheet.

PAINTING PROCESS
QUESTION 8.01, RESIDUAL TREATMENT PROCESS



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8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

³For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

<u>Additive Package Number</u>	<u>Components of Additive Package</u>	<u>Concentrations (% or ppm)</u>
<u>1</u>	<u>NA</u>	<u>NA</u>
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

⁵Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> <u>(± ug/l)</u>
<u>1</u>	NA	NA
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[illegible]

²Use the codes provided in Exhibit 8-2 to designate the management methods

58

EXHIBIT 8-1.
(Refers to question 8.06(b))

WASTE DESCRIPTION CODES

These waste description codes were developed specifically for this survey to supplement the descriptions listed with the RCRA and other waste codes. (These waste description codes are not regulatory definitions.)

WASTE DESCRIPTION CODES FOR HAZARDOUS WASTE DESCRIBED BY A SINGLE RCRA F, K, P, OR U WASTE CODE

A01 Spent solvent (F001-F005, K086)	A06 Contaminated soil or cleanup residue	A10 Incinerator ash
A02 Other organic liquid (F001-F005, K086)	A07 Other F or K waste, exactly as described*	A11 Solidified treatment residue
A03 Still bottom (F001-F005, K086)	A08 Concentrated off-spec or discarded product	A12 Other treatment residue (specify in "Facility Notes")
A04 Other organic sludge (F001-F005, K086)	A09 Empty containers	A13 Other untreated waste (specify in "Facility Notes")
A05 Wastewater or aqueous mixture		

*"Exactly as described" means that the waste matches the description of the RCRA waste code.

INORGANIC LIQUIDS—Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content.

- B01 Aqueous waste with low solvents
- B02 Aqueous waste with low other toxic organics
- B03 Spent acid with metals
- B04 Spent acid without metals
- B05 Acidic aqueous waste
- B06 Caustic solution with metals but no cyanides
- B07 Caustic solution with metals and cyanides
- B08 Caustic solution with cyanides but no metals
- B09 Spent caustic
- B10 Caustic aqueous waste
- B11 Aqueous waste with reactive sulfides
- B12 Aqueous waste with other reactives (e.g., explosives)
- B13 Other aqueous waste with high dissolved solids
- B14 Other aqueous waste with low dissolved solids
- B15 Scrubber water
- B16 Leachate
- B17 Waste liquid mercury
- B18 Other inorganic liquid (specify in "Facility Notes")

INORGANIC SLUDGES—Waste that is primarily inorganic, with moderate-to-high water content and low organic content; pumpable.

- B19 Lime sludge without metals
- B20 Lime sludge with metals/metal hydroxide sludge
- B21 Wastewater treatment sludge with toxic organics
- B22 Other wastewater treatment sludge
- B23 Untreated plating sludge without cyanides
- B24 Untreated plating sludge with cyanides
- B25 Other sludge with cyanides
- B26 Sludge with reactive sulfides
- B27 Sludge with other reactives
- B28 Degreasing sludge with metal scale or filings
- B29 Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)
- B30 Sediment or lagoon dragout contaminated with organics
- B31 Sediment or lagoon dragout contaminated with inorganics only

- B32 Drilling mud
- B33 Asbestos slurry or sludge
- B34 Chloride or other brine sludge
- B35 Other inorganic sludge (specify in "Facility Notes")

INORGANIC SOLIDS—Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.

- B36 Soil contaminated with organics
- B37 Soil contaminated with inorganics only
- B38 Ash, slag, or other residue from incineration of wastes
- B39 Other "dry" ash, slag, or thermal residue
- B40 "Dry" lime or metal hydroxide solids chemically "fixed"
- B41 "Dry" lime or metal hydroxide solids not "fixed"
- B42 Metal scale, filings, or scrap
- B43 Empty or crushed metal drums or containers
- B44 Batteries or battery parts, casings, cores
- B45 Spent solid filters or adsorbents
- B46 Asbestos solids and debris
- B47 Metal-cyanide salts/chemicals
- B48 Reactive cyanide salts/chemicals
- B49 Reactive sulfide salts/chemicals
- B50 Other reactive salts/chemicals
- B51 Other metal salts/chemicals
- B52 Other waste inorganic chemicals
- B53 Lab packs of old chemicals only
- B54 Lab packs of debris only
- B55 Mixed lab packs
- B56 Other inorganic solids (specify in "Facility Notes")

INORGANIC GASES—Waste that is primarily inorganic with a low organic content and is a gas at atmospheric pressure.

- B57 Inorganic gases

ORGANIC LIQUIDS—Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content.

- B58 Concentrated solvent-water solution
- B59 Halogenated (e.g., chlorinated) solvent
- B60 Nonhalogenated solvent

- B61 Halogenated/nonhalogenated solvent mixture
- B62 Oil-water emulsion or mixture
- B63 Waste oil
- B64 Concentrated aqueous solution of other organics
- B65 Concentrated phenolics
- B66 Organic paint, ink, lacquer, or varnish
- B67 Adhesives or epoxies
- B68 Paint thinner or petroleum distillates
- B69 Reactive or polymerizable organic liquid
- B70 Other organic liquid (specify in "Facility Notes")

ORGANIC SLUDGES—Waste that is primarily organic, with low-to-moderate inorganic solids content and water content; pumpable.

- B71 Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
- B72 Still bottoms of nonhalogenated solvents or other organic liquids
- B73 Oily sludge
- (B74) Organic paint or ink sludge
- B75 Reactive or polymerizable organics
- B76 Resins, tars, or tarry sludge
- B77 Biological treatment sludge
- B78 Sewage or other untreated biological sludge
- B79 Other organic sludge (specify in "Facility Notes")

ORGANIC SOLIDS—Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable.

- B80 Halogenated pesticide solid
- B81 Nonhalogenated pesticide solid
- B82 Solid resins or polymerized organics
- B83 Spent carbon
- B84 Reactive organic solid
- B85 Empty fiber or plastic containers
- B86 Lab packs of old chemicals only
- B87 Lab packs of debris only
- B88 Mixed lab packs
- B89 Other halogenated organic solid
- B90 Other nonhalogenated organic solid

ORGANIC GASES—Waste that is primarily organic with low-to-moderate inorganic content and is a gas at atmospheric pressure.

- B91 Organic gases

EXHIBIT 8-2.
(Refers to question 8.06(c))

MANAGEMENT METHODS

- M1 = Discharge to publicly owned wastewater treatment works
M2 = Discharge to surface water under NPDES
M3 = Discharge to off-site, privately owned wastewater treatment works
M4 = Scrubber: a) caustic; b) water; c) other
M5 = Vent to: a) atmosphere; b) flare; c) other (specify) _____
M6 = Other (specify) _____

TREATMENT AND RECYCLING

(Incineration) thermal treatment

- 1I Liquid injection
2I Rotary or rocking kiln
3I Rotary kiln with a liquid injection unit
4I Two stage
5I Fixed hearth
6I Multiple hearth
7I Fluidized bed
8I Infrared
9I Fume/vapor
10I Pyrolytic destructor
11I Other incineration/thermal treatment

Reuse as fuel

- 1RF Cement kiln
2RF Aggregate kiln
3RF Asphalt kiln
4RF Other kiln
5RF Blast furnace
6RF Sulfur recovery furnace
7RF Smelting, melting, or refining furnace
8RF Coke oven
9RF Other industrial furnace
10RF Industrial boiler
11RF Utility boiler
12RF Process heater
13RF Other reuse as fuel unit

Fuel Blending

- 1FB Fuel blending

Solidification

- 1S Cement or cement/silicate processes
2S Pozzolanic processes
3S Asphaltic processes
4S Thermoplastic techniques
5S Organic polymer techniques
6S Jacketing (macro-encapsulation)
7S Other solidification

Recovery of solvents and liquid organics for reuse

- 1SR Fractionation
2SR Batch still distillation
3SR Solvent extraction
4SR Thin-film evaporation
5SR Filtration
6SR Phase separation
7SR Dessication
8SR Other solvent recovery

Recovery of metals

- 1MR Activated carbon (for metals recovery)
2MR Electrodialysis (for metals recovery)
3MR Electrolytic metal recovery
4MR Ion exchange (for metals recovery)
5MR Reverse osmosis (for metals recovery)
6MR Solvent extraction (for metals recovery)
7MR Ultrafiltration (for metals recovery)
8MR Other metals recovery

Wastewater Treatment

After each wastewater treatment type listed below (1WT - 66WT) specify a) tank; or b) surface impoundment (i.e., 63WTa)

Equalization

- 1WT Equalization

Cyanide oxidation

- 2WT Alkaline chlorination
3WT Ozone
4WT Electrochemical
5WT Other cyanide oxidation

General oxidation (including disinfection)

- 6WT Chlorination
7WT Ozonation
8WT UV radiation
9WT Other general oxidation

Chemical precipitation¹

- 10WT Lime
11WT Sodium hydroxide
12WT Soda ash
13WT Sulfide
14WT Other chemical precipitation

Chromium reduction

- 15WT Sodium bisulfite
16WT Sulfur dioxide

EXHIBIT 8-2. (continued)

MANAGEMENT METHODS

17WT Ferrous sulfate
18WT Other chromium reduction

Complexed metals treatment (other than
chemical precipitation by pH adjustment)
19WT Complexed metals treatment¹

Emulsion breaking
20WT Thermal
21WT Chemical
22WT Other emulsion breaking

Adsorption
23WT Carbon adsorption
24WT Ion exchange
25WT Resin adsorption
26WT Other adsorption

Stripping
27WT Air stripping
28WT Steam stripping
29WT Other stripping

Evaporation
30WT Thermal
31WT Solar
32WT Vapor recompression
33WT Other evaporation

Filtration
34WT Diatomaceous earth
35WT Sand
36WT Multimedia
37WT Other filtration

Sludge dewatering
38WT Gravity thickening
39WT Vacuum filtration
40WT Pressure filtration (belt, plate
and frame, or leaf)
41WT Centrifuge
42WT Other sludge dewatering

Air flotation
43WT Dissolved air flotation
44WT Partial aeration
45WT Air dispersion
46WT Other air flotation

Oil skimming
47WT Gravity separation

48WT Coalescing plate separation
49WT Other oil skimming

Other liquid phase separation
50WT Decanting
51WT Other liquid phase separation

Biological treatment
52WT Activated sludge
53WT Fixed film-trickling filter
54WT Fixed film-rotating contactor
55WT Lagoon or basin, aerated
56WT Lagoon, facultative
57WT Anaerobic
58WT Other biological treatment

Other wastewater treatment
59WT Wet air oxidation
60WT Neutralization
61WT Nitrification
62WT Denitrification
63WT Flocculation and/or coagulation
64WT Settling (clarification)
65WT Reverse osmosis
66WT Other wastewater treatment

OTHER WASTE TREATMENT

1TR Other treatment
2TR Other recovery for reuse

ACCUMULATION

1A Containers
2A Tanks

STORAGE

1ST Container (i.e., barrel, drum)
2ST Tank
3ST Waste pile
4ST Surface impoundment
5ST Other storage

DISPOSAL

1D Landfill
2D Land treatment
3D Surface impoundment (to be closed
as a landfill)
4D Underground injection well

¹ Chemical precipitation is a treatment operation whereby the pH of a waste is adjusted to the range necessary for removal (precipitation) of contaminants. However, if the pH is adjusted solely to achieve a neutral pH, THE OPERATION SHOULD BE CONSIDERED NEUTRALIZATION (60WT).

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1						
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1	NA	NA
2		
3		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 9 WORKER EXPOSURE

General Instructions:

Questions 9.03-9.25 apply only to those processes and workers involved in manufacturing or processing the listed substance. Do not include workers involved in residual waste treatment unless they are involved in this treatment process on a regular basis (i.e., exclude maintenance workers, construction workers, etc.).

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

☐

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	<u>X</u>	<u>X</u>	<u>1972</u>	<u>Indefinite</u>
Age at hire	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Work history of individual before employment at your facility	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Sex	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Race	<u>X</u>	<u>X</u>	<u>1980</u>	<u>"</u>
Job titles	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Start date for each job title	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
End date for each job title	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Work area industrial hygiene monitoring data	<u>X</u>	<u>NA</u>	<u>1986</u>	<u>"</u>
Personal employee monitoring data	<u>X</u>	<u>NA</u>	<u>1986</u>	<u>"</u>
Employee medical history	<u>X</u>	<u>X</u>	<u>1972</u>	<u>"</u>
Employee smoking history	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Accident history	<u>X</u>	<u>X</u>	<u>1972</u>	<u>Duration of employment</u>
Retirement date	<u>X</u>	<u>X</u>	<u>1972</u>	<u>7 yrs</u>
Termination date	<u>X</u>	<u>X</u>	<u>1972</u>	<u>7 yrs</u>
Vital status of retirees	<u>X</u>	<u>X</u>	<u>1965</u>	<u>Indefinite</u>
Cause of death data	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site use as reactant	Enclosed	_____	_____	_____
	Controlled Release	.33	2	50
	Open	_____	_____	_____
On-site use as nonreactant	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site preparation of products	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Painter

B

C

D

E

F

G

H

I

J

☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

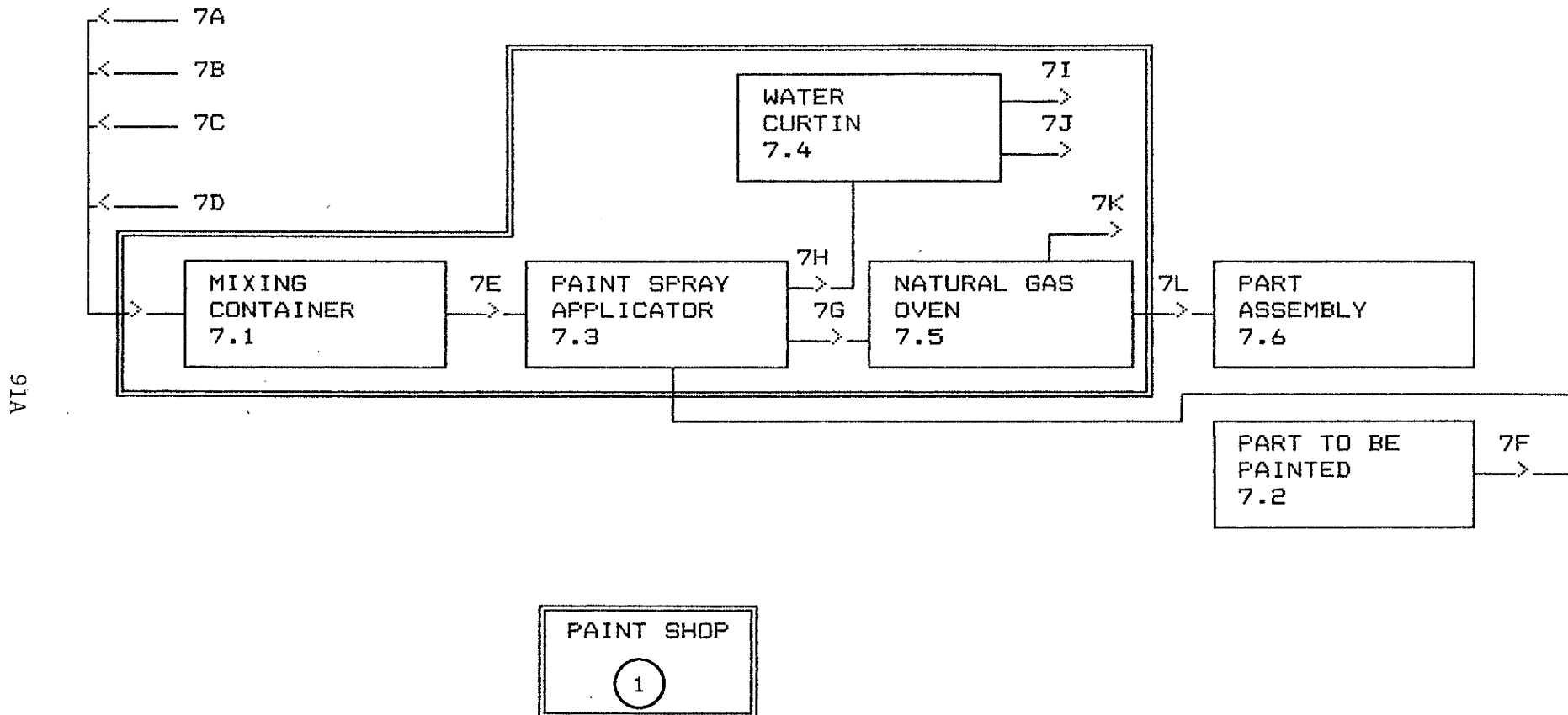
CBI

☐ Process type Painting

(See block flow diagram on page 91A)

☒ Mark (X) this box if you attach a continuation sheet.

PAINTING PROCESS
For Benzene, 1,3-DIISOCYANATOMETHYL (TOLUENE DIISOCYANATE)
QUESTION 9.04, PROCESS DIAGRAM WITH WORK AREAS



Bell & Howell Company
Document Management Products Company
6800 N. McCormick Road
Chicago, IL 60645

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Painting

Work Area ID

Description of Work Areas and Worker Activities

1	<u>Paint Shop (painters mix paint, additives, and solvents;</u>
2	<u>spray paint parts.)</u>
3	<u></u>
4	<u></u>
5	<u></u>
6	<u></u>
7	<u></u>
8	<u></u>
9	<u></u>
10	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Painting

Work area 1

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
A	2	Inhalation	OL	C	33

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

[]

[]

1

Labor Category

8-hour TWA Exposure Level
(ppm, mg/m³, other-specify)

15-Minute Peak Exposure Level
(ppm, mg/m³, other-specify)

A

UK _____

UK

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□

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

<u>Sample/Test</u>	<u>Work Area ID</u>	<u>Testing Frequency (per year)</u>	<u>Number of Samples (per test)</u>	<u>Who Samples¹</u>	<u>Analyzed In-House (Y/N)</u>	<u>Number of Years Records Maintained</u>
Personal breathing zone	NA					
General work area (air)						
Wipe samples						
Adhesive patches						
Blood samples						
Urine samples						
Respiratory samples						
Allergy tests						
Other (specify)						
Other (specify)						
Other (specify)						

¹Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist

B = Insurance carrier

C = OSHA consultant

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

☐ Sample Type Sampling and Analytical Methodology

NA	

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

☐ Equipment Type¹ Detection Limit² Manufacturer Averaging Time (hr) Model Number

NA				

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μm^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

NA

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Painting

Work area 1

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1956 (est)</u>	<u>Y</u>	<u>1969</u>
General dilution	<u></u>	<u></u>	<u></u>	<u></u>
Other (specify) <u></u>	<u></u>	<u></u>	<u></u>	<u></u>
Vessel emission controls	<u></u>	<u></u>	<u></u>	<u></u>
Mechanical loading or packaging equipment	<u></u>	<u></u>	<u></u>	<u></u>
Other (specify) <u></u>	<u></u>	<u></u>	<u></u>	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Painting

Work area 1

<u>Equipment or Process Modification</u>	<u>Reduction in Worker Exposure Per Year (%)</u>
<u>NA</u>	

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Painting

Work area 1

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	_____
Safety goggles/glasses	<u>Y</u>
Face shields	_____
Coveralls	_____
Bib aprons	_____
Chemical-resistant gloves	<u>Y</u>
Other (specify)	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type _____

<u>Work Area</u>	<u>Respirator Type</u>	<u>Average Usage¹</u>	<u>Fit Tested (Y/N)</u>	<u>Type of Fit Test²</u>	<u>Frequency of Fit Tests (per year)</u>
_____	NA	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

¹Use the following codes to designate average usage:

A = Daily
 B = Weekly
 C = Monthly
 D = Once a year
 E = Other (specify) _____

²Use the following codes to designate the type of fit test:

QL = Qualitative
 QT = Quantitative

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type NA

Work area

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type NA

Work area

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping				
Vacuuming				
Water flushing of floors				
Other (specify)				

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

(No)..... 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes 1

(No)..... 2

If yes, where are copies of the plan maintained? _____

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes 1

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area ①
- Urban area 2
- Residential area 3
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- Within 1 mile of a navigable waterway 7
- Within 1 mile of a school, university, hospital, or nursing home facility 8
- Within 1 mile of a non-navigable waterway ⑨
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 42 ° 00 ' 20''N

Longitude 87 ° 42 ' 45''W

UTM coordinates Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation inches/year

Predominant wind direction

10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of CBI Y, N, and NA.)

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	N	N	N
Importing	N	N	N
Processing	N	N	N
Otherwise used	N	N	N
Product or residual storage	N	N	N
Disposal	N	N	N
Transport	N	N	N

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐

Quantity discharged to the air	NA	kg/yr ± ____ %
Quantity discharged in wastewaters	NA	kg/yr ± ____ %
Quantity managed as other waste in on-site treatment, storage, or disposal units	NA	kg/yr ± ____ %
Quantity managed as other waste in off-site treatment, storage, or disposal units	NA	kg/yr ± ____ %

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[]

[illegible]

[]

PART B RELEASE TO AIR

- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type

Point Source
ID Code

Description of Emission Point Source

7H

Spray Paint Parts

☐ Mark (X) this box if you attach a continuation sheet.

114

CBI

¹Use the following codes to designate physical state at the point of release:

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴ Average Emission Factor — Provide estimated (± 25 percent) emission factor (kg of emission per kg of production of listed substance)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m) ¹	Building Width(m) ²	Vent, Type ³
NA							

¹Height of attached or adjacent building

²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

☐

Point source ID code

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

NA

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐

Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type NA
 Percentage of time per year that the listed substance is exposed to this process type %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed	NA					
Mechanical						
Double mechanical ²						
Compressor seals ¹						
Flanges						
Valves						
Gas ³						
Liquid						
Pressure relief devices ⁴ (Gas or vapor only)						
Sample connections						
Gas						
Liquid						
Open-ended lines ⁵ (e.g., purge, vent)						
Gas						
Liquid						

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

²If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

CBI

☐

a. Number of Pressure Relief Devices	b. Percent Chemical in Vessel ¹	c. Control Device	d. Estimated Control Efficiency ²
NA			

¹Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type

Equipment Type	Leak Detection	Detection Device ¹	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
	Concentration (ppm or mg/m ³) Measured at _____ Inches from Source				
Pump seals					
Packed	NA				
Mechanical					
Double mechanical					
Compressor seals					
Flanges					
Valves					
Gas					
Liquid					
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Vessel Type ¹	Floating Roof ² Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Vessel Volume (l)	Operating Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶
NA													

¹Use the following codes to designate vessel type:

F = Fixed roof
 CIF = Contact internal floating roof
 NCIF = Noncontact internal floating roof
 EFR = External floating roof
 P = Pressure vessel (indicate pressure rating)
 H = Horizontal
 U = Underground

²Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
 MS2 = Shoe-mounted secondary
 MS2R = Rim-mounted, secondary
 LM1 = Liquid-mounted resilient filled seal, primary
 LM2 = Rim-mounted shield
 LMW = Weather shield
 VM1 = Vapor mounted resilient filled seal, primary
 VM2 = Rim-mounted secondary
 VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
 S = Sampling

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u>NA</u>	<u></u>	<u></u>	<u></u>
<u>2</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>3</u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>4</u>	<u></u>	<u></u>	<u></u>	<u></u>
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10.24 Specify the weather conditions at the time of each release.

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
<u>2</u>	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
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☐ Mark (X) this box if you attach a continuation sheet.

MATERIAL SAFETY DATA SHEET
for Coatings, Resins, & Related Materials

PRODUCT: BLACK NEXTEL URETHANE LACQUER-COMPONENT I HMIS CODES: H F R
PRODUCT CODE: 3101-C10 2 3 1

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: RED SPOT PAINT & VARNISH CO., INC.
ADDRESS: P.O. BOX 418, EVANSVILLE, IN 47703
EMERGENCY PHONE: CHEMTREC 800-424-9300 INFORMATION PHONE: 812-428-9100
DATE PREPARED: 02/24/89 NAME OF PREPARER: JEFF ADLER
FORMULA DATE: 05/29/87

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS		VAPOR PRESS.	
		OSHA PEL - Code	ACGIH TLV - Code	mmHg @ T	% By Wt.
FERRIC OXIDE	1317-61-9	15.00 mg/m ³ T	10.00 mg/m ³ T	Not Applic.	Less Than 5 %
BUTYL ACETATE	123-86-4	150.00 ppm	150.00 ppm	10.000 @ 20 C	20 %
1-METHOXY-2-PROPANOL ACETATE	108-65-6	Not Estab.	Not Estab.	3.700 @ 20 C	25 %
TOLUENE	108-88-3	200.00 ppm	100.00 ppm	22.000 @ 20 C	Less Than 5 %
XYLENE	11330-20-7	100.00 ppm	100.00 ppm	5.600 @ 20 C	Less Than 5 %
CELLULOSE ACETATE BUTYRATE	9004-36-9	Not Estab.	5.00 mg/m ³ M	Not Applic.	Less Than 5 %

Doses: C = Ceiling L = STEL M = Manufacturer's Recommendation N = Not Estab. R = Respirable Dust S = Skin T = Total Dust

T = This Material is Subject to Reporting By Section 313 of S.A.R.A. Title III.

STEL LIMITS and/or PEL VALUES:

STEL LIMIT	PEL Values and Limits
BUTYL ACETATE 200.00 ppm	
TOLUENE 150.00 ppm	
XYLENE 150.00 ppm	Cell: 500 ppm Peak: 300 ppm 10 Minutes

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE: 122 To 150 C Deg. SPECIFIC GRAVITY [H₂O=1] : 1.061
VAPOR DENSITY: HEAVIER THAN AIR EVAPORATION RATE: SLOWER THAN ETHER
SOLUBILITY IN WATER: 3.5% OF TOT. WT. VOLATILE BY VOLUME: 62.9 %
VOC = 4.790 LBS./GAL.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID - CLASS IC

FLASH POINT: 81 Deg.F TOC

FLAMMABLE LIMITS IN AIR BY VOLUME: LOWER = 1.00 % UPPER = 13.10 %

EXTINGUISHING MEDIA:

SMALL FIRES: EXTINGUISH WITH DRY CHEMICAL, CO₂, WATER SPRAY OR ALCOHOL FOAM. LARGE FIRES: THE USE OF DRY CHEMICAL OR ALCOHOL/UNIVERSAL FOAM IS RECOMMENDED. FLOOD WITH WATER FROM A SAFE DISTANCE.

FIRE & EXPLOSION HAZARDS:

FLASHBACK ALONG VAPOR TRAIL MAY OCCUR. THIS MATERIAL MAY BE IGNITED BY HEAT, SPARKS, FLAME OR STATIC ELECTRICITY. CLOSE CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT.

FIRE FIGHTING PROCEDURES:

THE USE OF A SELF CONTAINED BREATHING APPARATUS IS RECOMMENDED FOR FIRE FIGHTERS. WATER SPRAY MAY BE USEFUL IN MINIMIZING VAPORS AND COOLING CONTAINERS EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

MSDS for 3101-C10 Continued.

Page 2

SECTION V - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS: FUMES MAY CONTAIN CO AND/OR CO2.

CONDITIONS TO AVOID: DO NOT STORE ABOVE 120 Deg F.

INCOMPATABILITY (Materials To Avoid):

AVOID CONTAMINATION WITH STRONG OXIDIZING AGENTS AND ALKALIES.

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS & SYMPTOMS OF EXPOSURE:

THIS PRODUCT MAY CAUSE ALLERGIC RESPIRATORY REACTION. OVEREXPOSURE MAY CAUSE LIVER AND KIDNEY DAMAGE. THIS PRODUCT MAY CAUSE NOSE AND THROAT IRRITATION. HARMFUL IF INHALED. MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE, OR NAUSEA.

FIRST AID: REMOVE TO FRESH AIR. RESTORE BREATHING. TREAT SYMPTOMATICALLY. CONSULT A PHYSICIAN.

SKIN CONTACT HEALTH RISKS & SYMPTOMS OF EXPOSURE:

PROLONGED OR REPEATED CONTACT MAY CAUSE DRYING, CRACKING OR IRRITATION

FIRST AID: REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREAS THOROUGHLY WITH SOAP AND WATER. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT HEALTH RISKS & SYMPTOMS OF EXPOSURE:

THIS PRODUCT IS AN EYE IRRITANT. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO ITS VAPOR OR MISTS MAY CAUSE TEARING, REDNESS AND SWELLING

FIRST AID: FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. TAKE TO A PHYSICIAN FOR MEDICAL TREATMENT.

INGESTION HEALTH RISKS & SYMPTOMS OF EXPOSURE:

ASPIRATION HAZARD: THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE. IT MAY ALSO CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS, AND STUPOR FROM IRRITATION OF THE DIGESTION TRACT.

FIRST AID: DRINK 1 OR 2 GLASSES OF WATER TO DILUTE. DO NOT INDUCE VOMITING. CONSULT PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY. TREAT SYMPTOMATICALLY.

OTHER HEALTH HAZARDS (ACUTE and CHRONIC):

NO CHRONIC HAZARDS ARE EXPECTED.

REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

CARCINOGENITY: NTP No IARC MONOGRAPHS No OSHA REGULATED No

MSDS for 3101-C10 Continued.

Page 3

===== SECTION VII - SPILL OR LEAK PROCEDURES =====

IN CASE OF SPILL OR LEAK:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS.

===== SECTION VIII - SAFE HANDLING AND USE INFORMATION =====

RESPIRATORY PROTECTION: IN RESTRICTED VENTILATION AREAS USE NIOSHA/MSHA APPROVED CHEMICAL MECHANICAL FILTERS DESIGNED TO REMOVE GAS AND VAPOR. IN CONFINED AREAS USE A BUREAU OF MINES AIR LINE TYPE RESPIRATORS OR HOODS.

VENTILATION: PROVIDE GENERAL DILUTION OF LOCAL EXHAUST VENTILATION IN VOLUME

AND PATTERN TO KEEP TLV OF HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION IV BELOW STATED LIMIT.

PROTECTIVE GLOVES: GLOVES LINED WITH POLYETHYLENE OFFER MAXIMUM PROTECTION.

EYE PROTECTION: SAFETY EYEWEAR SUCH AS SPLASH GUARDS, SIDE SHIELDS, CHEMICAL GOGGLES OR FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT: PROTECTIVE OVERALLS THAT WILL PREVENT CLOTHING CONTAMINATION AND SKIN IRRITATION.

HYGIENIC PRACTICES: WASH HANDS BEFORE EATING OR USING WASHROOM. SMOKE IN SMOKING AREAS ONLY.

===== SECTION IX - SPECIAL PRECAUTIONS =====

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

DO NOT STORE OR USE NEAR HEAT, SPARKS, OR FLAMES.

OTHER PRECAUTIONS:

DO NOT TAKE INTERNALLY. ADD LABEL WARNING. AVOID BREATHING SANDING DUST.

The information and recommendations contained herein are, to the best Red Spot's knowledge and belief, accurate and reliable as of the date issued. Red Spot does not warrant or guarantee their accuracy or reliability, and Red Spot shall not be liable for any loss or damage arising out of the use thereof.

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COMPONENT II.

4/20/89 120Y
H - 3*
F - 3
R - 1
PP -

MATERIAL SAFETY DATA SHEET

RED SPOT PAINT & VARNISH CO., INC.
P.O. BOX 418
EVANSVILLE, IN 47703

ISSUE DATE 7-14-88
SUPERSEDES 3-30-88

TRANSPORTATION EMERGENCY: CALL CHEMTREC
TELEPHONE NO: 800-424-9300; DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION EMERGENCY NO.:
(812) 428-9100

I. PRODUCT IDENTIFICATION

PRODUCT NAME.....: Cataylst
PRODUCT CODE NUMBER.....: 3101-Component II
CHEMICAL FAMILY.....: Aromatic Polyisocyanate
CHEMICAL NAME.....: Toluene Diisocyanate based adduct
SYNONYMS.....: Toluene diisocyanate prepolymer
T.S.C.A. STATUS.....: OK
OSHA HAZARD COMMUNICATION
STATUS.....: This product is hazardous under the criteria
of the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
CHEMICAL FORMULA.....: Oligomeric resin, not applicable

II. HAZARDOUS INGREDIENTS

COMPONENTS:	Z:	OSHA-PEL	ACGIH-TLV	V.P.@ 20C
Butyl Acetate (123-86-4)	44	150 ppm TWA	150 ppm TWA	8.0
Ethyl Acetate (EA) (CAS# 141-78-6)	14	400 ppm TWA	400 ppm TWA	76
Aromatic Polyisocyanate	42	Not Established	Not Established	
Toluene Diisocyanate (TDI) (CAS# 26471-62-5)	*	0.02 ppm Ceiling	0.005 ppm TWA 0.02 ppm STEL	

TDI residual monomer content is less than 0.7% based on resin solids.

III. PHYSICAL DATA

APPEARANCE.....: Liquid
COLOR.....: Clear yellow
ODOR.....: Of solvent
MELT POINT/FREEZE POINT...: Not Established
BOILING POINT.....: 77-126
VAPOR DENSITY (AIR=1).....: Heavier Than Air
SPECIFIC GRAVITY.....: 1.02
BULK DENSITY.....: 8.57 lbs/gal
SOLUBILITY IN WATER.....: Isocyanate - Insoluble, reacts with water to
liberate CO₂ gas; EA - 7.4% IA - 0.68
Z VOLATILE BY VOLUME.....: 68.4

IV. FIRE & EXPLOSION DATA

FLASH POINT °F(°C).....: 30°F (-1°C) TAG Closed Cup (ASTM D56)

FLAMMABLE LIMITS -

Lel.....: 1.7

Uel.....: 11.0

EXTINGUISHING MEDIA.....: Dry chemical (e.g. monoammonium phosphate, potassium sulfate, and potassium chloride), carbon dioxide

SPECIAL FIRE FIGHTING PROCEDURES/UNUSUAL FIRE OR EXPLOSION HAZARDS:

Full emergency equipment with self-contained breathing apparatus and full protective clothing (such as rubber gloves, boots, bands around legs, arms and waist) should be worn by firefighters. No skin surface should be exposed. During a fire, TDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Section VIII). Closed container may explode when exposed to extreme heat or burst when contaminated with water (CO₂ evolved). Solvent vapors may be heavier than air. Under conditions of stagnant air, vapors may build up and travel along the ground to an ignition source which may result in a flash back to the source of the vapors.

V. HUMAN HEALTH DATA

PRIMARY ROUTE(S) OF

EXPOSURE.....: Inhalation, Skin Contact, Eyes

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

INHALATION

Acute Exposure: TDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure.

Solvent vapors are irritating to the eyes, nose, throat and respiratory tract resulting in red, itchy eyes, dryness of the throat and tightness in the chest. Other possible symptoms of overexposure include headache, nausea, narcosis, fatigue and loss of appetite. Ethyl Acetate odor may be objectionable at 200 ppm and is mildly irritating to the eyes, nose and throat at 400 ppm. At concentrations in excess of 13,000 ppm Ethyl Acetate is only mildly narcotic.

Chronic Exposure: As a result of previous repeated overexposures or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours

V. HUMAN HEALTH DATA (Continued)

after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanate has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage. Symptoms include loss of memory, loss of intellectual ability and loss of coordination.

SKIN CONTACT

Acute Exposure: Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

Repeated or prolonged skin contact with the solvent can result in dry, defatted and cracked skin causing increased susceptibility to infection. In addition, dermatitis and skin rash and redness may occur from skin contact. EA does not readily penetrate the skin to cause systemic toxic effects.

Chronic: Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

EYE CONTACT

Acute Exposure: Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. See Section VI for treatment.

Chronic Exposure: Prolonged vapor contact may cause conjunctivitis.

INGESTION

Acute Exposure: Can result in irritation in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea. Vomiting may cause aspiration resulting in chemical pneumonitis.

Chronic Exposure: None known.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE..: Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema.

CARCINOGENICITY

NTP.....: The National Toxicology Program reported that TDI caused an increase in the number of tumors in exposed rats over those counted in non-exposed rats. The TDI was administered in corn-oil and introduced into the stomach through a tube. Based on this study, the NTP has listed TDI as a substance that may reasonably be anticipated to be a carcinogen in its Fourth Annual Report on Carcinogens.

V. HUMAN HEALTH DATA (Continued)

IARC.....: IARC has announced that it will list TDI as a substance for which there is sufficient evidence for its carcinogenicity in experimental animals but inadequate evidence for the carcinogenicity of TDI to humans (IARC Monograph 39).

OSHA.....: Not listed.

OTHER.....: No carcinogenic activity was observed in lifetime inhalation studies in rats and mice (International Isocyanate Institute).

EXPOSURE LIMITS - Not established for the product as a whole. Refer to Section II for exposure limits of the hazardous constituents.

VI. EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT.....: Flush with clean, lukewarm water (low pressure) or at least 15 minutes holding eyelids open all the time, and obtain medical attention. Refer individual to an ophthalmologist for immediate follow-up.

SKIN CONTACT.....: Remove contaminated clothing immediately. Wash affected areas thoroughly with soap or tincture of green soap and water for at least 15 minutes. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, get medical attention, and consult physician.

INHALATION.....: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician.

INGESTION.....: DO NOT INDUCE VOMITING. Give a glass of milk or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.

NOTE TO PHYSICIAN.....: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. Skin: Treat as contact dermatitis. If burned, treat as thermal burn. Respiratory: Treatment is essentially symptomatic.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS

EYE PROTECTION.....: Liquid chemical goggles or full-face shield.

Contact lenses should not be worn.

SKIN PROTECTION.....: Chemical resistant gloves (butyl rubber, nitrile rubber). Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

VENTILATION AND

RESPIRATORY PROTECTION...: Exhaust ventilation sufficient to keep the airborne concentrations of the solvents and TDI below their respective TLVs must be utilized. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. In addition, a respirator that is recommended or approved for use in isocyanate containing environments (air purifying or fresh air supplied) may be necessary. Consider type of

VII. EMPLOYEE PROTECTION RECOMMENDATIONS (Continued)

application and environmental concentrations. Observe OSHA regulations for respirator use (29 CFR 1910.134). In spray applications, when the airborne isocyanate monomer concentrations are known to be below 0.2 ppm and if the polyisocyanate (polymeric, oligomer) concentrations are known to be below 10 mg/m³, a properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate containing spray paint environments, will provide sufficient protection. The use of a positive pressure supplied air respirator is mandatory when: airborne isocyanate concentrations are not known, either of the above guidelines are exceeded, or if spraying is performed in a confined space or area with limited ventilation.

It is possible to be exposed to airborne solvent or isocyanate vapors even during non-spray operations such as mixing, and brush or roller application, depending on the conditions of application. For example, heating of material or application to a hot substrate may increase emissions from the coating. Therefore, when airborne concentrations during such non-spray operations exceed the suggested TLV of 0.02 ppm for isocyanate monomer, but are below 0.2 ppm, at least an air purifying (organic vapor) respirator is required. If airborne concentrations are unknown or exceed 0.2 ppm; or if operations are performed in a confined space, a supplied air respirator must be worn. In addition, solvent concentrations should be considered when determining the selection and use of a respirator.

Refer to Patty's Industrial Hygiene and Toxicology, Volume 1 (3rd edition) Chapter 17 and Volume III (1st edition) Chapter 3, for guidance concerning appropriate air sampling strategy to determine airborne concentrations.

MEDICAL SURVEILLANCE.....: Medical supervision of all employees who handle or come in contact with TDI is recommended. These should include preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with TDI. Once a person is diagnosed as being sensitized to TDI, no further exposure can be permitted.

MONITORING.....: TDI, polyisocyanate and solvent exposure levels must be monitored by accepted monitoring techniques to ensure that the TLVs are not exceeded. (Contact Red Spot for guidance). See Volume 1 (Chapter 17) and Volume 3 (Chapter 3) in Patty's Industrial Hygiene and Toxicology for sampling strategy.

OTHER.....: Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

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VIII. REACTIVITY DATA

STABILITY.....: Stable under normal conditions.

POLYMERIZATION.....: None under normal conditions.

INCOMPATIBILITY

(MATERIALS TO AVOID).....: Avoid contact with water, alcohols, amines, strong bases, metal compounds or surface active materials. This product contains trimethylol propane and should not be combined with phosphorus containing materials.

HAZARDOUS DECOMPOSITION

PRODUCTS.....: By fire: CO₂, CO, oxides of nitrogen, HCN, TDI.

IX. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate non-essential personnel. Remove all sources of ignition. Ventilate the area. Equip clean-up crew with appropriate protective equipment (i.e., clothing, respiratory, etc. See Employee Protection Recommendations). Dike or impound spilled material and control further spillage if feasible. Notify appropriate authorities if necessary. Cover spill with sawdust, vermiculite, Fuller's earth or other absorbent material; pour liquid decontaminant over spillage and allow to react at least 10 min., collect material in open containers and add further amounts of decontamination solution. Remove containers to safe place. Cover loosely. Wash down area with liquid decontaminant and flush spill area with water.

Decontamination solutions: Ammonium hydroxide (0-10%), detergent (2-5%) and balance water; or solution of Union Carbide's Tergitol TMN-10 (20%) and water (80%).

CECCLA (SUPERFUND) REPORTABLE QUANTITY: TDI - 100 lbs.; EA --5000 lbs.

WASTE DISPOSAL METHOD: Follow all federal, state or local regulations. TDI must be disposed of in a permitted incinerator or landfill. Incineration is the preferred method for liquids. Solids are usually incinerated or landfilled. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Empty decontaminated containers should be crushed to prevent reuse. DO NOT HEAT OR CUT EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH. (See Sections IV and VIII). Vapors and gases may be highly toxic.

RCRA STATUS.....: 3101 Comp. II is a hazardous waste due to its ignitability (EPA Hazardous Waste Number D001).

X. SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE

(MIN./MAX.).....: 32°F (0°C)/122°F (50°C)

AVERAGE SHELF LIFE.....: 12 months at 77°F (25°C)

SPECIAL SENSITIVITY

(HEAT, LIGHT, MOISTURE): If container is exposed to high heat, 375°F (177°C) it can be pressurized and possibly rupture. The isocyanates react slowly with water to form polyureas and liberate CO₂ gas. This gas can cause sealed containers to expand and possibly rupture.

X. SPECIAL PRECAUTIONS & STORAGE DATA (Continued)

PRECAUTIONS TO BE TAKEN

IN HANDLING AND STORING.: Keep away from heat, sparks or open flame. Ground container during storage and transfer operations. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Prevent all contact. Do not breathe the vapors. Warning properties of isocyanates (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Exposure to vapors of heated TDI can be extremely dangerous. Employee education and training in safe handling of this product are required under the OSHA Hazard Communication Standard.

XI. SHIPPING DATA

D.O.T. SHIPPING NAME.....: Flammable Liquid NOS
 TECHNICAL SHIPPING NAME....: Polyisocyanate, contains toluene diisocyanate and Ethyl Acetate and Butyl Aetate
 D.O.T. HAZARD CLASS.....: Flammable Liquid
 UN/NA NO.....: UN 1993
 PRODUCT REPORTABLE QTY.....: 19,000 lbs.
 D.O.T. LABELS REQUIRED.....: Flammable Liquid
 D.O.T. PLACARDS.....: Flammable
 FRT. CLASS BULK.....: Isocyanate
 FRT. CLASS PKG.....: Chemicals NOI (Isocyanate) (NMFC 60000)
 PRODUCT LABEL.....: 3101-Component II |

XII. ANIMAL TOXICITY DATA

ANIMAL TOXICITY - 100% solids polyisocyanate resin.

ORAL, LD50

(INGESTION).....: Greater than 25 g/kg (Rat)

DERMAL, LD50

(SKIN CONTACT).....: Greater than 6.5 g/kg (Rabbit)

EYE EFFECTS.....: Mechanical irritation observed (Rabbit)

SKIN EFFECTS.....: Non-irritating (Rabbit)

ANIMAL TOXICITY - Ethyl Acetate

ORAL, LD50.....: 5.6 g/kg (Rat)

INHALATION, LC50.....: Greater than 8000 ppm (Rat) - 8000 ppm caused no deaths; 16,000 ppm killed all test animals.

DERMAL.....: Greater than 18 g/kg (Rabbit)

OTHER.....: Guinea pigs exposed to 2000 ppm for 4 hr/day, 6 days/week for 65 exposures showed no ill effects.

ANIMAL TOXICITY - TDI

SENSITIZATION.....: Skin sensitizer in guinea pigs. One study (available upon request) with guinea pigs reported that repeated skin contact with TDI caused respiratory sensitization.

SUB-ACUTE/SUB-CHRONIC.....: Animal tests indicated that TDI inhalation caused irritation of the mucous membranes of the respiratory tract.

XII. ANIMAL TOXICITY DATA (Continued)

CHRONIC.....: In lifetime inhalation studies conducted by Hazelton Labs for the International Isocyanate Institute, TDI did not demonstrate carcinogenic (cancer causing) activity in rats or mice. In this study, exposure to 0.05 to 0.15 ppm resulted in irritation of the mucous membranes of the respiratory tract.

The National Toxicology Program (NTP) reported that TDI administered by gavage caused an increase in tumors in exposed animals. Based on this study TDI has been listed by NTP and IARC.

MUTAGENIC TESTS.....: Results of mutagenic (genotoxic) studies are conflicting with some tests positive and others negative.

XIII. APPROVALS

REASON FOR ISSUE.....: Revision

APPROVED BY.....: Jeffrey R. Adler

TITLE.....: Manager, Product Safety & Test Department

MATERIAL SAFETY DATA SHEET
for Coatings, Resins, & Related MaterialsPRODUCT: PROMOTER
PRODUCT CODE: 3101 COMPONENT IIIHMIS CODES: H F R
3 3 0

(USED WITH BLACK SHADE PAINT - 1PT/GAL PAINT)

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: RED SPOT PAINT & VARNISH CO., INC.
ADDRESS: P.O. BOX 418, EVANSVILLE, IN 47703
EMERGENCY PHONE: CHEMTREC 800-424-9300 INFORMATION PHONE: 812-428-9100
DATE PREPARED: 02/24/89 NAME OF PREPARER: JEFF ADLER
FORMULA DATE: 12/16/83

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS		VAPOR PRESS.	
		OSHA PEL - Code	ACGIH TLV - Code	mmHg @ T	% By Wt.
XYLENE	11330-20-7	100.00 ppm	100.00 ppm	6.600 @ 20 C	90 %
DIBUTYLTIN DILAURATE	77-58-7	0.10 mg/m3 S	0.10 mg/m3 S	0.200 @ 160 C	10 %

Codes: C = Ceiling L = STEL M = Manufacturer's Recommendation N = Not Estab. R = Respirable Dust S = Skin T = Total Dust

* = This Material is Subject to Reporting By Section 313 of S.A.R.A. Title III.

STEL LIMITS and/or PEL VALUES: STEL LIMIT PEL Values and Limits
XYLENE 150.00 ppm

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE: 137 To 140 C Deg. SPECIFIC GRAVITY (H2O=1) : 0.881
VAPOR DENSITY: HEAVIER THAN AIR EVAPORATION RATE: SLOWER THAN ETHER
SOLUBILITY IN WATER: 0.0% OF TOT. WT. VOLATILE By VOLUME: 91.6 %
VOC = 6.605 LBS./GAL.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID - CLASS IC
FLASH POINT: 81 Deg.F TCC
FLAMMABLE LIMITS IN AIR BY VOLUME: LOWER = 1.00 % UPPER = 7.00 %

EXTINGUISHING MEDIA:

SMALL FIRES: EXTINGUISH WITH DRY CHEMICAL, CO2, WATER SPRAY OR ALCOHOL FOAM. LARGE FIRES: THE USE OF DRY CHEMICAL OR ALCOHOL/UNIVERSAL FOAM IS RECOMMENDED. FLOOD WITH WATER FROM A SAFE DISTANCE.

FIRE & EXPLOSION HAZARDS:

FLASHBACK ALONG VAPOR TRAIL MAY OCCUR. THIS MATERIAL MAY BE IGNITED BY HEAT, SPARKS, FLAME OR STATIC ELECTRICITY.
CLOSE CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT.

FIRE FIGHTING PROCEDURES:

THE USE OF A SELF CONTAINED BREATHING APPARATUS IS RECOMMENDED FOR FIRE FIGHTERS. WATER SPRAY MAY BE USEFUL IN MINIMIZING VAPORS AND COOLING CONTAINERS EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

02/24/89

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SECTION V - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS: FUMES MAY CONTAIN CO AND/OR CO2.

CONDITIONS TO AVOID: DO NOT STORE ABOVE 120 Deg F.

INCOMPATIBILITY (Materials To Avoid):

AVOID CONTAMINATION WITH STRONG OXIDIZING AGENTS AND ALKALIES.

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS & SYMPTOMS OF EXPOSURE:

THIS PRODUCT MAY CAUSE ALLERGIC RESPIRATORY REACTION. OVEREXPOSURE MAY CAUSE LIVER AND KIDNEY DAMAGE. THIS PRODUCT MAY CAUSE NOSE AND THROAT IRRITATION. HARMFUL IF INHALED. MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE, OR NAUSEA.

FIRST AID: REMOVE TO FRESH AIR. RESTORE BREATHING. TREAT SYMPTOMATICALLY. CONSULT A PHYSICIAN.

SKIN CONTACT HEALTH RISKS & SYMPTOMS OF EXPOSURE:

THIS PRODUCT IS CORROSIVE AND PRODUCES SEVERE BURNS TO THE SKIN.

FIRST AID: REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREAS THOROUGHLY WITH SOAP AND WATER. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT HEALTH RISKS & SYMPTOMS OF EXPOSURE:

THIS PRODUCT IS CORROSIVE AND PRODUCES SEVERE BURNS.

FIRST AID: FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. TAKE TO A PHYSICIAN FOR MEDICAL TREATMENT.

INGESTION HEALTH RISKS & SYMPTOMS OF EXPOSURE:

ASPIRATION HAZARD: THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE. IT MAY ALSO CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS, AND STUPOR FROM IRRITATION OF THE DIGESTION TRACT.

FIRST AID: DRINK 1 OR 2 GLASSES OF WATER TO DILUTE. DO NOT INDUCE VOMITING. CONSULT PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY. TREAT SYMPTOMATICALLY.

OTHER HEALTH HAZARDS (ACUTE and CHRONIC):

NO CHRONIC HAZARDS ARE EXPECTED.

REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

CARCINOGENITY: NTP No IARC MONOGRAPHS No OSHA REGULATED No

===== SECTION VII - SPILL OR LEAK PROCEDURES =====

IN CASE OF SPILL OR LEAK:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS, VENTILATE AREA, REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS.

===== SECTION VIII - SAFE HANDLING AND USE INFORMATION =====

RESPIRATORY PROTECTION: IN RESTRICTED VENTILATION AREAS USE NIOSHA/MSHA APPROVED CHEMICAL MECHANICAL FILTERS DESIGNED TO REMOVE GAS AND VAPOR. IN CONFINED AREAS USE A BUREAU OF MINES AIR LINE TYPE RESPIRATORS OR HOODS.

VENTILATION: PROVIDE GENERAL DILUTION OF LOCAL EXHAUST VENTILATION IN VOLUME

AND PATTERN TO KEEP TLV OF HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION IV BELOW STATED LIMIT.

PROTECTIVE GLOVES: GLOVES LINED WITH POLYETHYLENE OFFER MAXIMUM PROTECTION.

EYE PROTECTION: SAFETY EYEWEAR SUCH AS SPLASH GUARDS, SIDE SHIELDS, CHEMICAL GOGGLES OR FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT: PROTECTIVE OVERALLS THAT WILL PREVENT CLOTHING CONTAMINATION AND SKIN IRRITATION.

HYGENIC PRACTICES: WASH HANDS BEFORE EATING OR USING WASHROOM. SMOKE IN SMOKING AREAS ONLY.

===== SECTION IX - SPECIAL PRECAUTIONS =====

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

DO NOT STORE OR USE NEAR HEAT, SPARKS, OR FLAMES.

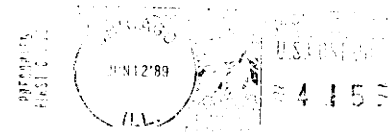
OTHER PRECAUTIONS:

DO NOT TAKE INTERNALLY. ADD LABEL WARNING. AVOID BREATHING SANDING DUST.

The information and recommendations contained herein are, to the best Red Spot's knowledge and belief, accurate and reliable as of the date issued. Red Spot does not warrant or guarantee their accuracy or reliability, and Red Spot shall not be liable for any loss or damage arising out of the use thereof.

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FROM R. S. Matthews

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